WHAT IS CLAIMED IS:

1.   A network control system in an AVC system to which a plurality of AV apparatuses are connected via a transmission line, comprising:

a controller equipped with a user interface; and

5   a device to be controlled,

wherein the device has apparatus information in device and version information indicative of a version of the information inside the device to be updated when the apparatus information in device is updated,

characterized in that the controller reads the apparatus information

10   and the version information inside the device from the device and detects a change inside the device by the version information.

2.   The network control system according to claim 1, characterized in that, the apparatus information of the device inside is state information

15   showing a condition of the device, and

the device has the state information showing the condition of the device and version information that shows the version of the state information to be updated when the state information is updated, and

the controller reads the state information and the version

20   information from the device and detects the change of the device by the version information.

3.   The network control system according to claim 2, characterized in that, the controller issues a notification request to the device for

25   requesting notification of the change of the state information when the

controller uses the state information of the device, and

receives the version information as the primary response to the

notification request, and if the state information is changed in the device,

the controller receives the updated version information as the secondary

5 response to the notification request.

4. The network control system according to claim 3, characterized in

that the controller reads the state information between the primary

response and the secondary response.

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5. The network control system according to claim 3, characterized in

that the secondary response from the device contains the updated version

information and updated state information.

15 6. The network control system according to claim 1, characterized in

that, the information of the device inside is operation screen information

which shows an operation screen of the device, and

the device has the operation screen information of the device and

the version information showing the version of the operation screen

20 information when the operation screen information is updated, and

the controller reads the operation screen information and the

version information from the device, and detects a change of the

operation screen of the device by the version information.

25 7. The network control system according to claim 6, characterized in

that, the operation screen information comprises a plurality of objects, and the controller issues the notification request to the device for requesting notification on changes of the operation screen information when the device operation screen information of the device is displayed

5   on the display screen, and receives the version information as the primary response to the notification request, and receives the updated version information as the secondary response to the notification request when the operation screen information is changed in the device.

10   8.   The network control system according to claim 7, characterized in that the secondary response from the device contains the updated version information and the updated object information.

9.   The network control system according to claim 1, characterized in

15   that the version information is a counter value which is incremented every time the information of the device inside is updated.

10.   The device according to claim 1, characterized in that, the information of the device inside is the state information that indicates the

20   device condition, and that the device has the state information that shows the device condition and the version information that shows the version of the state information to be updated when the state information is updated, and the change of the device condition is detected by the version information.

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11. The controller according to claim 1, characterized in that the controller reads the state information that indicates the condition of the device and version information that shows the version of the state information from the device to be controlled, and detects the change of

5   the device condition by the version information.

12. The device according to claim 4, characterized in that, the device returns the version information as the primary response to the notification request from the controller,

10   returns the updated version information as the secondary response of the notification request when the state information is changed in the device, and reads the state information between the primary response and the secondary response.

15   13. The controller according to claim 4, characterized in that, the controller received, as the primary response of the notification request, the version information that indicates the version of the state information, and receives the updated version information as the secondary response of the notification request when the operation screen

20   information is changed in the device, and reads the state information of the device between the primary response and the secondary response.

14. The device according to claim 6, characterized in that, the device has the operation screen information that shows the operation screen and

25   version information that shows version of the operation screen

information to be updated when the operation screen information is updated, and the change of the operation screen is indicated by the version information.

5   15.   The controller according to claim 6, characterized in that, the controller reads, from the device, the operation screen information that indicates the operation screen of the device and the version information that indicates the version of the operation screen information updated when the operation screen information is updated, and detects the change

10   of the operation screen information of the device by the version information.

16.   The device according to claim 7, characterized in that, the operation screen information comprises a plurality of objects, and the device

15   returns the version information as the primary response to the notification request from the controller, and returns the updated version information as the secondary response to the notification request when the operation screen information is changed in the device.

20   17.   The controller according to claim 7, characterized in that, the controller issues a notification request for requesting a notice of changes of the operation screen information to the device when the device operation screen information is displayed on the display screen, and receives the version information as the primary response to the

25   notification request, and receives the updated version information as the

secondary response to the notification request when the operation screen information is changed in the device.

18.   The network control system according to claim 7, characterized in that, the object comprises invariable objects which are not varied irrespective of the device state and variable objects which are varied in accordance with the device state, and the controller reads the objects from the device, carries out caching to the invariable objects, and displays the objects on the display screen.

19.   The network control system according to claim 18, characterized in that, the device has an invariable data set comprising invariable objects only and a variable data set comprising variable objects, and the controller carries out caching to the objects belonging to the invariable data set.

20.   The device according to claim 18, characterized in that the objects comprise invariable objects which are not varied irrespective of the device state and variable objects which are varied in accordance with the device state.

21.   The controller according to claim 18, characterized in that, the controller reads, from the device, the invariable objects which are not varied irrespective of the device state and variable objects which are varied in accordance with the device state, and carries out caching to the

invariable objects, and displays the invariable objects and variable

objects on the display screen.

22. A network control system in an AVC system to which a plurality of

5   AV apparatuses are connected via a transmission line, comprising:

a controller equipped with a user interface; and

a device to be controlled,

wherein the device has a function information table that shows a

device function and state, component elements constituting the function

10   information table, and element version information that shows a version

of the component elements of the function information table, and

wherein the controller detects changes of information in the function

information table using the element version information when the

controller uses the information in the function information table of the

15   device.

23. The network control system according to claim 22, characterized in

that, the device further has the function table version information that

indicates the version of the function table, and

20   the controller detects changes of the information in the function

information table using the function table version information when the

controller uses the information in the function table of the device, and

detects changes of information of the component elements using the

element version information when the controller uses the information in

25   the function information table of the device.

24.   The network control system according to claim 22, characterized in that, the device has a plurality of components that comprise the function table and the element version information that indicates the version of

5   the components for each component, and

the controller detects changes of the information of the component information using the element version information of the component when the controller uses the information in the components of the device.

10   25.   The network control system according to claim 22, characterized in that, the controller issues a notification request to the device for requesting notification of the change within the notification range using the information on the notification range indicated by each component when the controller uses the information in the function table of the

15   device, and

receives the element version information corresponding to the notification range, as the primary response to the notification request, and

if the information within the notification range is changed, the

20   controller receives the updated element version information as the secondary response to the notification request.

26.   The network control system according to claim 25, characterized in that the controller reads the information within the notification range

25   between the primary response and the secondary response.

27. The network control system according to claim 22, characterized in that the element version information indicating the version of the component is the function table version information when the component information is changed.

28. The network control system according to claim 22, characterized in that the components are menus.

29. The network control system according to claim 22, characterized in that the components are display parts.

30. The network control system according to claim 25, characterized in that the secondary response from the device contains the updated element version information and the updated information.

31. A network control system having a controller equipped with user interface connected to a device to be controlled via a transmission line, characterized in that, the device comprises:

apparatus information holding means (7, 8) for holding apparatus information in device, said apparatus information containing apparatus configuration information which indicates device configuration information and containing operation screen information which indicates a function and condition of the device and for configuring an operation screen of the device; and

version information generation managing means (9, 17, 18) which, when the information held in the apparatus information holding means (7, 8) changes, generates version information indicative of a change generation thereof to carry out version management,

5   wherein, when a notification request is issued from the controller to the device in response to the change of the apparatus information in device, a response from the device in response to said notification request contains the version information.

10   32.   The network control system according to claim 31, wherein the version information managing means (9, 17, 18) includes a version information generating means (18) and the version information is obtained by incrementing the counter value in the version information generating means 18 every time the apparatus information of the device

15   inside is changed.

33.   The network control system according to claim 31, wherein the operation screen information is a table of contents information and action state information that indicate the device functions and state, and

20   contains objects which are components of the operation screen information and identifiers (ID) for identifying the objects, wherein the objects contain a function menu (51), display part (52), text data objects, and still picture data objects.

25   34.   The network control system according to claim 31, wherein the

controller has means (12, 13) for storing and controlling the apparatus information and version information in relation to each other when the controller reads the apparatus information in the device and the version information.

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35. The network control system according to claim 31, wherein the notification request (101) issued from the controller contains information of the notification range that indicates the range which the controller hopes to bring the information in agreement with the device, and the

10 primary response (111) returned from the device as the response thereto contains the version information corresponding to the notification range.

36. The network control system according to claim 35, wherein when the controller receives the secondary response (121) from the device to the

15 notification request, the controller detects that the objects in the device are changed, and sends the second notification request (102) to the device before the changed object is requested.

37. The network control system according to claim 35, wherein the

20 operation screen information has a function menu set list (60), and the function menu set list (60) contains function table version information, and each of the function menu lists (61, 62, 63) has the element version information, and these function table version information and the element version information are generated by the version information

25 generation managing means (9, 17, 18).

38.   The network control system according to claim 35, wherein the version information is included in the menu list response (211), display part response (231) and object response (272) which are returned from

5   the device to the controller.

39.   A network control method having a controller equipped with user interface connected to a device to be controlled via a transmission line, characterized by comprising the steps of:

10   holding apparatus information in the device, said apparatus information containing apparatus configuration information which indicates device configuration information and containing operation screen information which indicates a function and condition of the device and for configuring an operation screen of the device;

15   when said held information is changed, generating version information indicative of a change generation thereof to carry out version management, and

when a notification request is issued from the controller to the device in response to the change of the apparatus information in the

20   device, sending a response to the controller from the device in response to said notification request, wherein the response from the device contains the version information.

40.   The network control system according to claim 39, wherein the

25   version information is obtained by incrementing a counter value every

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time the apparatus information in the device is updated.

41. The network control system according to claim 39, wherein the device sends the primary and secondary responses to the controller in

5   response to the notification request from the controller, and when the controller receives the secondary response, the controller judges that the version information is changed, and using an identifier of the updated apparatus information contained in the secondary response, reads the updated apparatus information (step 509) and updates the version

10 information in the controller (step 510).